**GMS Green Math**

**Math ties by SOL (2009 SOLs)**

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| **Number Sense** | 8.1a) simplify numerical expressions involving positive exponents, using rational numbers, order of operations, and properties of operations with real numbers. | * Measuring, cutting, joining materials * Cost calculations (tax, discount) |
| 8.1b) compare and order decimals, fractions, percents, and numbers written in scientific notation. | * Ordering, comparing cost of materials |
| 8.2 The student will describe orally and in writing the relationships between the subsets of the real number system. |  |
| **Computation and Estimation** | 8.3a) solve practical problems involving rational numbers, percents, ratios, and proportions. | * Draw, read scale drawings * Working within a budget * Measuring, cutting, joining materials * Cost calculations (tax, discount) * Ordering, comparing cost of materials |
| 8.3b) determine the percent increase or decrease for a given situation. | * Plant science – plant growth? Plant yield? |
| 8.4 The student will apply the order of operations to evaluate algebraic expressions for given replacement values of the variables. |  |
| 8.5a) determine whether a given number is a perfect square. |  |
| 8.5b) find the two consecutive whole numbers between which a square root lies. |  |
| **Measurement** | 8.6a) verify by measuring and describe the relationships among vertical angles, adjacent angles, supplementary angles, and complementary angles. |  |
| 8.6b) measure angles of less than 360°. | * Slope of land * Angle of sun * Angle of greenhouse (if it is curved kind) |
| 8.7a) investigate and solve practical problems involving volume and surface area of prisms, cylinders, cones, and pyramids; | * Calculate surface area of greenhouse covering material |
| 8.7b) describe how changing one measured attribute of a figure affects the volume and surface area. | * Planning- how size will affect amount/cost of materials needed |
| **Geometry** | 8.8a) apply transformations to plane figures. | * Reflection – symmetry of greenhouse |
| 8.8b) identify applications of transformations. |  |
| 8.9 The student will construct a three-dimensional model, given the top or bottom, side, and front views. | * Construct 3D greenhouse from 2-D plans! |
| 8.10a) verify the Pythagorean Theorem. |  |
| 8.10b) apply the Pythagorean Theorem. | * Use PT to make sure the rectangular base is “square” * Calculate lengths required to build top part of greenhouse (if top is triangular) |
| 8.11 The student will solve practical area and perimeter problems involving composite plane figures. | * Calculate perimeter, area of base of greenhouse to lay foundation |
| **Probability and Statistics** | 8.12 The student will determine the probability of independent and dependent events with and without replacement. | * Plant science – genetics? |
| 8.13a) make comparisons, predictions, and inferences, using information displayed in graphs. | * Cost calculations * Working within a budget * Cost effectiveness of growing/selling plants * Compare temperatures inside and outside greenhouse |
| 8.13b) construct and analyze scatterplots. | * Effect of earth latitude on daylight? * Compare temperatures inside and outside greenhouse |
| **Patterns Functions and Algebra** | 8.14 The student will make connections between any two representations (tables, graphs, words, and rules) of a given relationship | * Cost calculations * Working within a budget |
| 8.15a) solve multistep linear equations in one variable with the variable on one and two sides of the equation. | * Cost calculations * Working within a budget |
| 8.15b) solve two-step linear inequalities and graph the results on a number line. | * Cost calculations * Working within a budget |
| 8.15c) identify properties of operations used to solve an equation. |  |
| 8.16 The student will graph a linear equation in two variables. | * Cost calculations * Working within a budget |
| 8.17 The student will identify the domain, range, independent variable, or dependent variable in a given situation. | * Plant science- variables plant growth depends on |